



PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference LU6100	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/003897	International filing date (day/month/year) 14.04.2004	Priority date (day/month/year) 15.04.2003
International Patent Classification (IPC) or national classification and IPC C08F110/02, C08F4/02		
Applicant BASELL POLYOLEFINE GMBH		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 30.10.2004	Date of completion of this report 10.03.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Parry, J Telephone No. +31 70 340-1032 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003897

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-19 as originally filed

Claims, Numbers

1-12 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/003897

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-12
Inventive step (IS)	Yes: Claims	
	No: Claims	1-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

and /or

2. Non-written disclosures (Rule 70.9)

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/EP2004/003897

The following documents (D1-D6, and D11) will be referred to (see the ISR for the relevant passages):

- D1: US-A-6 028 149 (NEISSL WOLFGANG ET AL) 22 February 2000 (2000-02-22)
D2: WO 97/48742 A (GRACE W R & CO) 24 December 1997 (1997-12-24)
D3: EP-A-0 494 084 (MITSUI PETROCHEMICAL IND) 8 July 1992 (1992-07-08)
D4: WO 91/07443 A (NESTE OY) 30 May 1991 (1991-05-30)
D5: WO 91/16361 A (NESTE OY) 31 October 1991 (1991-10-31)
D6: US-A-5 145 821 (BUEHLER CHARLES K ET AL) 8 September 1992 (1992-09-08)
D11: WO 03/054028 A (BASELL POLYOLEFINE GMBH ; SCHNEIDER MARTIN-JULIUS (DE); KARER RAINER ()) 3 July 2003 (2003-07-03)

Re Item II

Priority

Patent No.: WO 03/054028 (D11) Publication date: 03/07/03/. Filing date: 10/12/02/. Priority date: 20/12/01/. Relevant for claims: 7-12. The present application is not entitled to the claimed priority rights, since the "priority document", DE10317395 filed 15/04/03/, as demonstrated by D1, filed by the same applicant, is not the first Convention application for the subject matter of claims 7-12 (Art. 4A, 4C(2) Paris Convention and Art. 8 (2) PCT).

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. D1 discloses in example 1 the preparative sequence: 1. Silica + 2. (Me₃Si)₂NH + 3. MgCl₂ + 4. TiOR₄ + 5. Mg(hexyl)₂ + 6. HCCl₃ halogenating agent (HA) + 7. TiCl₄ + 8. diisobutylphthalate electron donor (ED). The resultant composition is used in polypropylene polymerisation in the presence of Et₃Al. Comparative example A is as example 1, only avoiding the introduction of MgCl₂. Comparative example D is as example 1, except TiCl₄ is used instead of TiOR₄. Hence claims 1-5,7,9,10 and 12 are not novel.

2. D2 discloses in examples 19 and 20 in the preparative sequence: 1. TiO₂ + 2. Silica

(implicitly prepared) + 3. MgR_2 + 3. TiCl_4 + 4. Me_3SiCl HA + 5. BCl_3 HA + 6. lutidine ED. These compositions are used in ethylene polymerisation in the presence of iBu_3Al . Hence claims 1-,2,4,6,7,9-12 are not novel.

3. D3 discloses the preparative sequence: 1. Silica + 2. MgCl_2 + 3. 2-ethylhexanol (can be considered an ED) + 4. Et_2AlCl + 5. TiCl_3OR . There is no chlorinating agent, but the magnesium is effectively chlorinated as MgCl_2 . Ethylene prepolymerisation therewith followed by a main ethylene polymerisation is described. Hence claims 7-12 are not novel.

4. D4 discloses the preparative sequence of an olefin polymerisation catalyst: 1. Silica + 2. $(\text{Me}_3\text{Si})_2\text{NH}$ ED + 3. MgCl_2 + 4. Et_3Al + 5. TiCl_4 . No extra chlorinating agent is added but again the magnesium is effectively chlorinated as MgCl_2 . Hence claims 7, 9-12 are not novel.

5. D5 discloses the preparative sequence: 1. Silica + 2 $(\text{Me}_3\text{Si})_2\text{NH}$ ED + 3. MgCl_2 + 4. TiOR_4 + 5. EtAlCl_2 HA. The composition is employed in ethylene polymerisation. Hence claims 7, 9-12 are not novel.

6. D6 discloses the preparative sequence: 1. Silica + 2 $(\text{Me}_3\text{Si})_2\text{NH}$ ED + 3. MgOR_2 + 4. $\text{SiCl}_4/\text{HSiCl}_3$ HA + 4. TiCl_4 . Propylene polymerisation therewith is described. Hence claims 7, 9-12 are not novel.

7. D11 (see box I) , by the same applicant as the present application discloses the same compositions used in olefin polymerisation processes, but prepared with a different order of addition. Hence claims 7-12 are not novel.

Re Item VI

Certain documents cited

D11 Relevant for claims: 7-12

Re Item VII

Certain defects in the international application

The worked examples contain references to (low) aluminium content in the catalyst compositions, yet no such reagents are used in their preparation.

Re Item VIII

Certain observations on the international application

The following objections are made under Art. 6 (PCT):

1. Claim 1: (i) component C cannot necessarily be distinguished from any of the other components A (for example TiCl_4), B (for example MgCl_2) and D, if these components also comprise halogen atoms. Furthermore, the term "halogenating reagent" is meaningless as the element on which it is supposed to act has not been specified. Presumably, it is supposed to act on the magnesium component B, but the only magnesium compound of component B that can be feasibly halogenated under standard conditions appears to be MgR_2 : for example MgF_2 will not be halogenated.

(ii) the term "donor compound" is unclear: "electron donor" appears to have been intended.

2. Claims 7-12: 4. these are product claims or process claims defined in terms of products which are defined in terms of a process for their preparation. It cannot be ascertained that the resultant product was in fact prepared beforehand in this way.

3. Claim 9: the expression "if appropriate" describes a "result to be achieved" (PCT GL Ch.-III,4.7).

4. The subject matter related to the above-mentioned objections 1-3 will be ignored with respect to any considerations that might apply under Box V, since being unclear, it cannot be considered limiting for the scope of the claims.